William R. James/U.S. Fish & Wildlife Service

Managing for Cottontail Rabbits

By ***Sammy L. King*** and ***H. Lee Stribling***
Zoology & Wildlife Science Department, Auburn University

For many hunters, the sight of a cottontail rabbit brings back memories of their first hunt. Whether hunted alone from brush pile to brush pile or with a pack of beagles, cottontails evoke memories of "the good old days."

Historically, cottontail populations increased significantly with clearing of forests by settlers and early farming practices. Woody fence rows and "patchwork" planting of a variety of crops provided substantial food and cover for cottontails. However, as farming intensified, woody fence rows were eliminated and large tracts of land were planted with single crops. Small farms dropped out of production, allowing fallow fields to develop into mature forests. As a result, cottontail food and cover were greatly reduced and their population declined.

As late as the 1960s, there were almost 120,000 cottontail rabbit hunters in Alabama, but by 1989 the number declined sharply to around 33,000. Recognizing the dramatic downturn in cottontail hunters, the Alabama Conservation Department's Game and Fish Division (now the Alabama Division of Wildlife and Freshwater Fisheries) and Auburn University's Cooperative Fish & Wildlife Unit provided funds for a cottontail research program at the Alabama Agricultural Experiment Station's Piedmont Substation in Tallapoosa County. One of

the primary purposes of the study was to evaluate cottontail rabbit management practices that could be implemented by small landowners at relatively low cost. Manmade brush piles and prescribed burning were the methods chosen for investigation because of their relatively small expense and their effectiveness in many game management programs. Although construction of brush piles has been well documented as an effective cottontail management practice, prescribed burning had not yet been evaluated.

Fire is one of the most effective tools for wildlife managers. Fire has always been a strong force in the natural formation and maintenance of plant and animal communities. Wildlife managers have known the beneficial effects of regular, well-planned burning programs for years, but because of public misconceptions about fire, limits are often placed on its use for public lands. Nevertheless, fire can be used to manage numerous game species and to maintain certain plant communities.


U.S. Fish & Wildlife Service

Cottontail rabbits are believed to benefit from winter burning programs because of fire's effect on the vegetation that rabbits use for food and cover. Abundance of legumes such as partridge peas or beggar lice and other food plants increases after regular winter burns. Previous research indicated that increases in desirable plant species may increase cottontail reproduction. Thus fire can be beneficial to cottontail food supply and therefore could be a factor in increasing the number of rabbits. However, it was not known whether lack of sufficient cover following a burn would lead to increased predation by hawks, owls, foxes, stray pets, and other predators, or if cottontails would be directly injured by fire.

After prescribed burns in late winter (late February to March) a large percentage of cover is temporarily removed, so brush piles of trees, limbs, and baling wire constructed immediately after a fire can provide additional cover that may increase cottontail survival. After two years of intensive study, researchers observed only one rabbit injured by fire, and this instance was considered minor since the injury was not fatal. Most cottontails remained relatively calm during the burns, and several were observed moving slowly along the edge of the fire. Other cottontails were observed moving calmly along firebreaks within easy spotting distance of the persons implementing the prescribed burn.

Use of brush piles by rabbits after the burns was substantial. Brush piles, stump holes, burrows, and unburned patches of vegetation were used heavily for several weeks following the burn. Brush piles were also important for cottontails throughout the winter and provided cover for songbirds, other small mammals, snakes, and even wild turkeys. In addition to increasing cottontail abundance, management programs using prescribed fire are also effective in reducing fuel build-up thus helping prevent unwanted and dangerous wildfires. Prescribed fires can also be used for timber management.

Although fire is a very beneficial tool of wildlife management, it can be dangerous when used by untrained persons. Several factors should be considered before implementing a prescribed burn program. February and March are the best times to burn for the benefit of wildlife. Burns should be conducted on a one- to five-year cycle depending on the landowner's wildlife management objectives. Adequate firebreaks must be constructed, and the topography and general condition of the land need to be evaluated to determine estimated behavior of fire and possible effects of smoke on nearby highways or residential areas.

Construction of brush piles is quite simple. The most effective method is to cut halfway through several tree saplings and push them over in a pile so that they remain connected to the tree. Although hardwoods provide a strong base on which small pines and baling wire can be added, take care not to remove plants that produce mast (fruits and nuts wildlife used for food). Flowering dogwood and various species of oak trees that produce mast should not be cut for brush. Sweetgum is less valuable for wildlife and works well as brush. Actual species used will depend on the landowner's management objectives.

Brush pile size is not critical, but a good size is from 10 to 20 feet wide and 3 to 5 feet high. Brush piles should be composed of loosely piled limbs and tops. Put large limbs on the bottom and cover them with smaller ones. Try to provide one brush pile for every one or two acres. Expose a strip of bare earth around each pile by raking or disking before prescribed burns. After construction, brush piles can be fertilized to enhance growth of desirable plants for food and additional cover. Apply two to four pounds of 13-13-13 to each brush pile in April. Brush piles can be maintained by adding brush each year.

Immediate response of cottontail rabbits to prescribed fire treatment may be obvious. Significant changes in cottontail populations may take several years. Research continues to determine management practices that produce greatest cottontail abundance.